

What is claimed is:

1. A magnetic bearing device for magnetically
levitating a rotary body by contactlessly supporting the
body with magnetic attraction of pairs of electromagnets
5 with respect to an axial direction and two radial
directions orthogonal to each other and to the axial
direction, the rotary body having movable ranges in the
three supporting directions determined by mechanical
restraining means, the magnetic bearing device being
10 characterized in that the device comprises a pair of
electromagnets so arranged as to hold the rotary body at
opposite sides thereof in the direction of each of
control axes in the respective three supporting
directions, means for detecting the position of the
15 rotary body in the direction of the control axis and
electromagnet control means having at least an integral
operation unit for controlling the electromagnets based
on the result of detection of the position by the
position detecting means, the electromagnet control
20 means comprising a target levitated position setting
means for setting as a target levitated position of the
rotary body in the direction of the control axis the
position of the rotary body corresponding to the median
of an integral output which is the output of the

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integral operation unit when the rotary body is magnetically levitated in the vicinity of one of limit positions in the direction of the control axis determined by the mechanical restraining means and an
5 integral output of the integral operation unit when the rotary body is magnetically levitated in the vicinity of the other limit position.

2. A magnetic bearing device according to claim 1 which is characterized in that the target position
10 setting means is adapted to position the rotary body at said one limit position, thereafter magnetically levitate the rotary body in the vicinity thereof, obtain the integral output at this time to store the output as a first limit position integral output in a memory,
15 gradually shift the magnetically levitated position of the rotary body toward said other limit position, determine the position of the rotary body every time the rotary body is so shifted by a small distance at a time and the corresponding integral output for storage as an
20 intermediate position and an intermediate position integral output in the memory, move the rotary body to said other limit position, thereafter magnetically levitate the rotary body in the vicinity thereof, obtain the integral output at this time for use as a second

limit position integral output, determine the median of
the first limit position integral output and the second
limit position integral output, and select the output
most proximate to the median from among the intermediate
5 position integral outputs stored in the memory to
determine the intermediate position corresponding to the
selected intermediate position integral output as the
target levitated position.

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